

**REMARKS**

Claims 1, 3, 4 and 6-19 are pending in the present application. Claim 1 is in independent form. Claims 14-19 are withdrawn. Claims 1, 6 and 13-16 is amended. In view of the above amendments and the following remarks, favorable reconsideration and allowance of the present application is respectfully requested.

Initially, Applicants appreciate the Examiner's acknowledgment that all certified copies pertaining to foreign priority claimed under 35 U.S.C. §119 have been received and the indication that the references submitted in the Information Disclosure Statement filed on October 14, 2005 and April 17, 2007 have been considered.

I. **CLAIM OBJECTIONS**

Claim 1 stand objected to for having two subsections labeled "a)." By the present Amendment, Applicants have amended claim 1 to recite "a)" and "b)." Thus, withdrawal of the objection is respectfully requested.

II. **35 U.S.C. §112, SECOND PARAGRAPH REJECTION**

Claims 1-13 and 20 stand rejected under 35 U.S.C. §112, second paragraph rejection as allegedly being indefinite for failing to particularly

point out and distinctly claim the subject matter which Applicants regard as the invention.

In particular, the rejection states that the use of the term "or" in the recitation "glucoiberin...and/or glucoraphanin" of claim 1 is inconsistent because the claim requires that there be concentrations of glucoiberin and glucoraphanin.

As such, Applicants have removed the term "or" from claim 1.

The rejection also states that it is unclear if the levels of glucoiberin and glucoraphanin set forth in the claims are describing the Brassica plant used in the breeding process or are describing Brassica varieties that are produced by the breeding process.

Accordingly, Applicants have amended claim 1 to recite "...wherein in the cultivated Brassica oleracea plant the concentration of 3MSPG per 100 gram of fresh weight of the edible part is greater than 280 micromol and the concentration of 4MSBG per 100 gram of fresh weight of the edible part is greater than 120 micromol." This amendment is supported, at least, by paragraph [0033] of the published Specification (U.S. Publication No. 2007/0033675 A1), which indicates that the cited levels in the cultivated plants are chosen to ensure that the Brassica varieties show elevated levels.

The rejection further states that claim 1 does not set forth any steps involved in the method.

Thus, Applicants have amended claim 1 to recite "...crossing the Brassica oleracea plant provided under a) for breeding of Brassica varieties with elevated levels of anticarcinogenic glucosinolates..." This amendment is supported, at least, by paragraph [0026] of the published Specification. Therefore, amended claim 1 includes at least two steps of the method.

Accordingly, Applicants respectfully request that the Examiner reconsider and withdraw the §112, second paragraph rejection to claim 1-13 and 20.

### III. 35 U.S.C. §101 REJECTION

Claim 1 stands rejected under 35 U.S.C. §101 for allegedly failing to set forth any steps involved in the process.

As discussed above, claim 1 has been amended to recite "...crossing the Brassica oleracea plant provided under a) for breeding of Brassica varieties with elevated levels of anticarcinogenic glucosinolates..." Therefore, claim 1 is directed to statutory subject matter.

Accordingly, reconsideration and withdrawal of the §101 rejection is respectfully requested.

### IV. EXAMPLE EMBODIMENTS

Referring to paragraph [0013] of the published Specification, example embodiments discusses Mithen's use of 'wild' *Brassica* species for

introducing the ‘elevated’ levels of glucosinolates trait into *Brassica* varieties. Paragraphs [0014]-[0020] of the published Specification further discuss the drawbacks of using ‘wild’ *Brassica* species as donor plants for the ‘elevated glucosinolates’ trait.

Thus, example embodiments teach that the ‘elevated glucosinolates’ trait identified in the ‘wild’ *Brassica* species of Mithen can also be found in already-existing cultivated species of *Brassica*. Thus, the cultivated species of *Brassica* may be an inherently, genetically more related species. Therefore, not only can the desired traits (*e.g.*, the ‘elevated glucosinolates’ trait) be more readily introduced into a commercial variety due to the closer genetic relationship, the inheritance of undesirable, or unknown, traits from the ‘wild’ species may be avoided.

In other words, example embodiments teach that, in order to provide *Brassica* varieties with elevated glucosinolate levels as taught by Mithen, it is not necessary to use the ‘wild’ *Brassica* species, rather the ‘elevated glucosinolates’ trait can also be found in the already-existing cultivated *Brassica oleracea* plants.

Other example embodiments teach that the fresh weight values can be converted into prior art dry weight values by dividing by 10. Accordingly, the present donor plants (*i.e.*, the cultivated *Brassica* plants) of step (a) include at least 28 micromoles per gram dry weight (280 grams per 10 grams) of 3-methylsulphinylpropyl glucosinolate and 12 micromoles of 4-

methylsulphinylbutyl glucosinolate per gram dry weight (120 micromoles per 10 grams). See paragraph [0064] of the published Specification.

V. CITED ART REJECTIONS

*Claims 1-13 and 20 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Mithen et al. (hereinafter “Mithen”), U.S. Patent No. 6,340,784 B1. Applicants respectfully traverse the rejection.*

i. INDEPENDENT CLAIM 1

Amended independent claim 1 is directed to a method for providing Brassica varieties with elevated levels of anticarcinogenic glucosinolates including (*inter alia*) “providing a cultivated Brassica oleracea plant with elevated levels of anticarcinogenic glucosinolates.” Applicants submit that Mithen fails to explicitly teach, or otherwise suggest, the above features recited in amended independent claim 1.

a. MITHEN

The rejection states that “Mithen et al teach a method of providing a plant with elevated levels of anticarcinogenic glucosinolates, by providing a Brassica oleracea plant, such as Green Duke broccoli (GD DH) and wild species of B. oleracea to breed Brassica varieties of elevated levels of

anticarcinogenic glucosinolates, such as 3MSPG (MSP) and 4MSBG (MSB) (columns 6-8 and 11-13, for example).” Action, p. 4.

As noted by the Examiner, Mithen relates to the use of ‘wild’ *Brassica* species, not “cultivated *Brassica oleracea* plant” as recited in claim 1.

Furthermore, in Table 1 of Mithen, the fresh weight values for the cultivated *Brassica oleracea* species are 0.1 and 0.8 for Green Comet, 0.2 and 4.6 for GD DH, 1.0 and 5.4 for Marathon and 0.4 and 11.1 for Trixie, respectively. The values reported in Table 1 for the hybrid (*i.e.*, the cross between the wild species and the cultivated species) are 26.2 and 76.5.

Applicants note that these plants are not cultivated *Brassica oleracea* plants, but undefined fusion products with the drawbacks mentioned above. The undefined nature of the fusion products is exemplified by the fact that, although the donor plants *B. drepanensis* and *B. villosa* both do not contain high levels of 4-methylsulphanylbutyl (4MSPG), the fusion products do. That is, the fusion products contain 76.5 and 81.8 micromoles per gram of 4MSPG. Apparently these glucosinolate levels are not inherited traits from the ‘wild’ *Brassica* species as claimed in Mithen (see claim 1 of Mithen).

Thus, Mithen fails to provide any motivation, or suggest, to use cultivated *Brassica oleracea* species for ‘elevated’ glucosinolate donor plants.

For at least these reasons, Applicants submit that Mithen fails to explicitly teach, or otherwise suggest, a method for providing Brassica varieties with elevated levels of anticarcinogenic glucosinolates including

"providing a cultivated Brassica oleracea plant with elevated levels of anticarcinogenic glucosinolates" as recited in amended independent claim 1.

Accordingly, Applicants respectfully request that the Examiner reconsider and withdraw the §103(a) rejection to independent claim 1, and claims 2-13 and 20 at least by virtue of their dependency on independent claim 1.

VI. REQUEST FOR REJOINDER

In the event that independent claim 1 is found allowable, Applicants respectfully request rejoinder of withdrawn claims 14-19, which depend on and therefore require all of the limitation of claim 1.

THE REMAINDER OF THIS PAGE HAS INTENTIONALLY BEEN LEFT BLANK

**CONCLUSION**

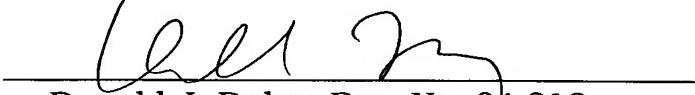
Accordingly, in view of the above, reconsideration of the objections and rejections and allowance of each of claims 1-13 and 20 in connection with the present application is earnestly solicited.

Should there be any matters that need to be resolved in the present application, the Examiner is respectfully requested to contact the undersigned at the telephone number below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 08-0750 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

HARNESS, DICKEY, & PIERCE, P.L.C.

By   
Donald J. Daley, Reg. No. 34,313

*CDW*  
DJD/CDW

P.O. Box 8910  
Reston, Virginia 20195  
(703) 668-8000